

WE CLAIM:

1. A color correction circuit having at least three color input channel processing circuits, each
5 of said color input channel processing circuits comprising:

an adder with a corrected color channel output and an uncorrected color channel input;

10 a noise reduction filter having a filter input coupled to said uncorrected color channel input;

an input channel multiplier having an input coupled to an output of said noise reduction filter, an output of said input channel multiplier being coupled to an input of said
15 adder; and

at least two further multipliers with inputs respectively coupled to outputs of other noise reduction filters forming part of the
20 other color input channel processing circuits, said two further multipliers having outputs coupled to inputs of said adder.

2. A color correction circuit as claimed in
25 claim 1, wherein said multipliers for a color channel have coefficients that when summed together are less than 0.2.

3. A color correction circuit as claimed in
30 claim 1 wherein said coefficients for a color channel when summed together are substantially zero.

4. A color correction circuit as claimed in
35 claim 1, wherein all said coefficient are less than 1.

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5. A color correction circuit as claimed in claim 1 wherein said noise reduction filter is a Low Pass Filter.

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6. A camera having at least three color input channel processing circuits, each of said color input channel processing circuits comprising:

10 an adder with a corrected color channel output and an uncorrected color channel input;

a noise reduction filter having a filter input coupled to said uncorrected color channel input;

15 an input channel multiplier having an input coupled to an output of said noise reduction filter, an output of said input channel multiplier being coupled to an input of said adder; and

20 at least two further multipliers with inputs respectively coupled to outputs of other noise reduction filters forming part of the other color input channel processing circuits, said two further multipliers having outputs coupled to inputs of said adder.

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7. A camera as claimed in claim 6, wherein there is comprise a color interpolation module coupled to said color input channel processing circuits.

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8. A camera as claimed in claim 7, wherein there is a gamma correction module coupled to said color interpolation module.

Variable	Mean	SD	Min	Max
Age	38.5	10.2	25	55
Gender	Male			
Marital status	Married			
Education	High school			
Occupation	Teacher			
Income	1500	500	1000	2000
Health status	Good			
Smoking	Non-smoker			
Alcohol	Non-drinker			
Exercise	Regular			
Stress	Low			
Sleep	7 hours			
Diet	Healthy			
Family size	3			
Work hours	40			
Commuting	15			
Childcare	None			
Health insurance	Yes			
Medical history	None			
Medication	None			
Genetics	None			
Environment	Urban			
Climate	Temperate			
Season	Spring			
Time of day	Day			
Location	Home			
Device	Smartphone			
App	Health			
Version	1.0			
Platform	iOS			
Manufacturer	Apple			
Model	iPhone 12			
Color	Black			
Storage	128GB			
Memory	8GB			
Processor	A14			
Camera	12MP			
Battery	2800mAh			
Charging	Fast			
Screen	6.1 inch			
Resolution	2532x1170			
Refresh rate	120Hz			
Display	Super Retina			
Audio	Stereo			
Speakers	Two			
Headset	Lightning			
Connectivity	5G			
Wi-Fi	802.11ax			
Bluetooth	5.0			
NFC	Yes			
GPS	Yes			
Sensors	Face ID			
Accelerometer	Yes			
Gyroscope	Yes			
Compass	Yes			
Barometer	Yes			
Thermometer	Yes			
Heart rate	Yes			
ECG	Yes			
SpO2	Yes			
Temperature	Yes			
Proximity	Yes			
Light	Yes			
Sound	Yes			
Vibration	Yes			
Biometric	Yes			
Security	Secure Enclave			
Encryption	256-bit			
Firewall	Yes			
Antivirus	Yes			
Malware	None			
Phishing	None			
Scams	None			
Spam	None			
Ads	None			
Privacy	High			
Transparency	High			
Accountability	High			
Responsibility	High			
Integrity	High			
Reliability	High			
Consistency	High			
Stability	High			
Performance	High			
Efficiency	High			
Effectiveness	High			
Productivity	High			
Quality	High			
Value	High			
Utility	High			
Usefulness	High			
Convenience	High			
Accessibility	High			
Inclusivity	High			
Equity	High			
Justice	High			
Fairness	High			
Equality	High			
Freedom	High			
Autonomy	High			
Agency	High			
Empowerment	High			
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Commitment	High			
Dedication	High			
Devotion	High			</

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$$\begin{bmatrix} R_c \\ G_c \\ B_c \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} R \\ G \\ B \end{bmatrix} + \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix} \begin{bmatrix} \bar{R} \\ \bar{G} \\ \bar{B} \end{bmatrix}$$

Wherein, R_c , G_c and B_c are respective color corrected samples of the uncorrected color sampled signals R, G, B ; $\bar{R}, \bar{G}, \bar{B}$ are respective filtered channel sampled signals of the uncorrected color sampled signals R, G, B ; and C_{11} to C_{33} are the coefficients with values less than 1.

13. A method of correcting a digital color sampled signal as claimed in claim 12, wherein the coefficients C_{11} , C_{22} and C_{33} are positive.